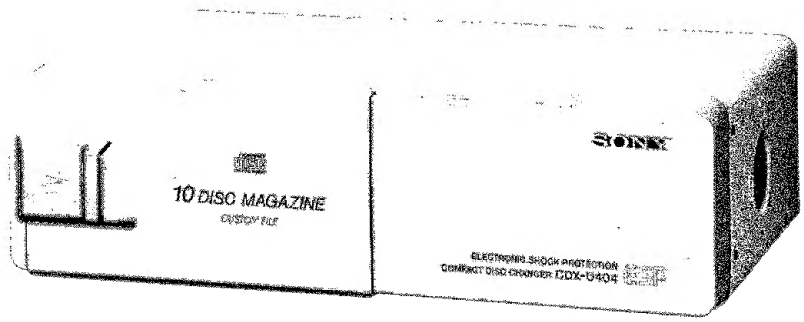
CDX-U404

SERVICE MANUAL

US Model
Canadian Model
AEP Model
E Model



Model Name Using Similar Mechanism	CDX-U303
CD Mechanism Name	KSM-310AAM

SPECIFICATIONS

System	Compact disc digital audio system
Frequency response	5 – 20,000 Hz
Wow and flutter	Below measurable limit
Signal-to-noise ratio	95 dB
Outputs	UNILINK control output (8 PIN) Analog audio output (RCA PIN)
Current drain	800 mA (CD playback) 800 mA (during loading or ejecting a disc)
Operating temperature	–10°C to 55°C
Dimensions	Approx. 305 × 90 × 174 mm (w/h/d) not incl. projecting parts and controls
Mass	Approx. 2.5 kg
Power requirement	12 V DC car battery (negative ground)
Supplied accessories	Disc magazine (1) Mounting hardware (1 set) UNILINK cable (1) RCA pin cord (1)

Design and specifications subject to change without notice.

使用説明書付属資料も参照のこと
Refer to the additional documents.

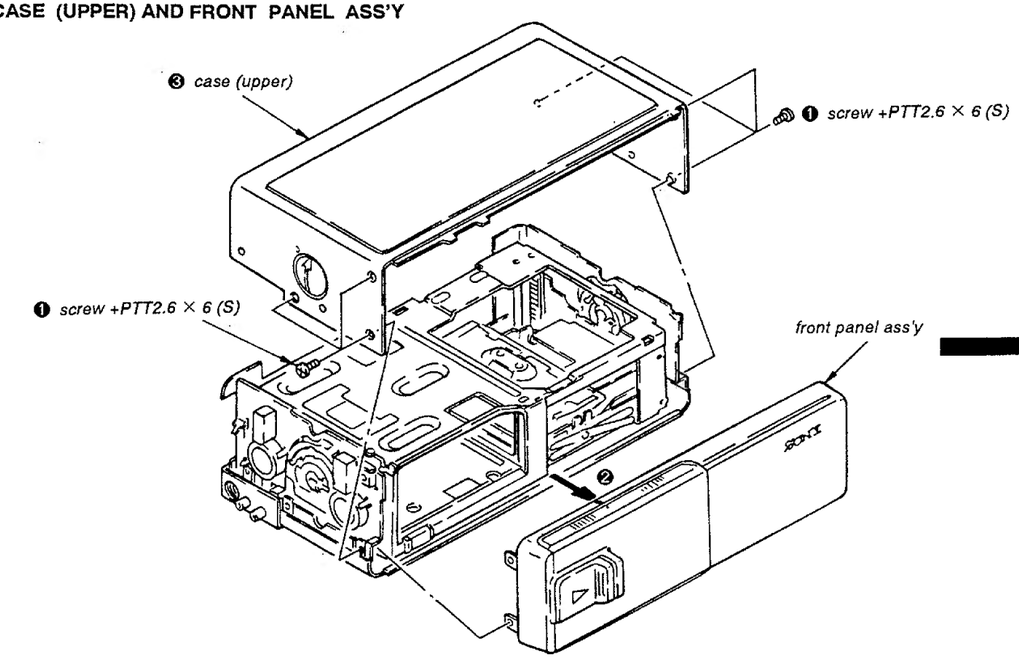
COMPACT DISC CHANGER

SONY®

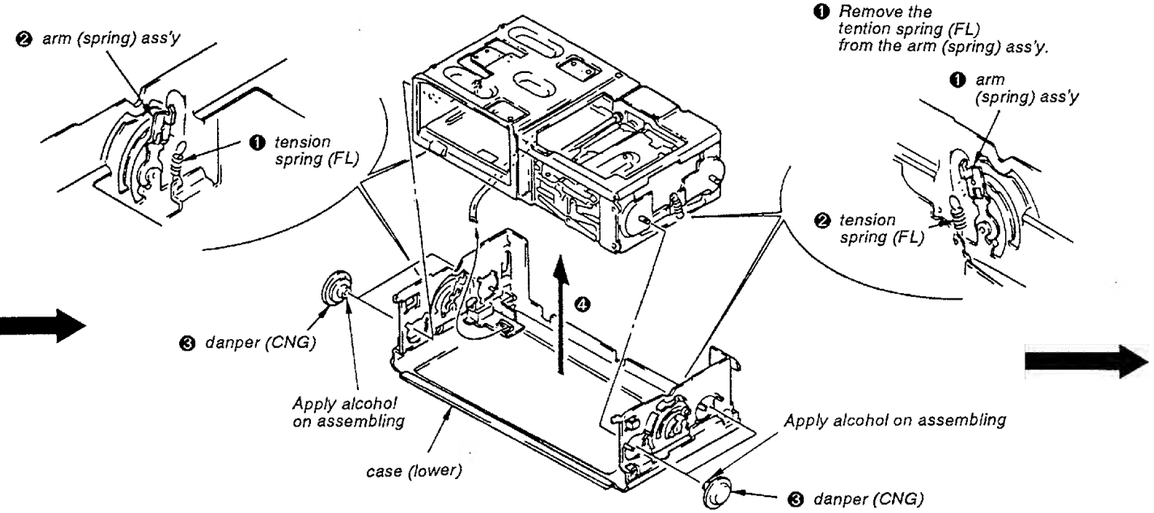
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

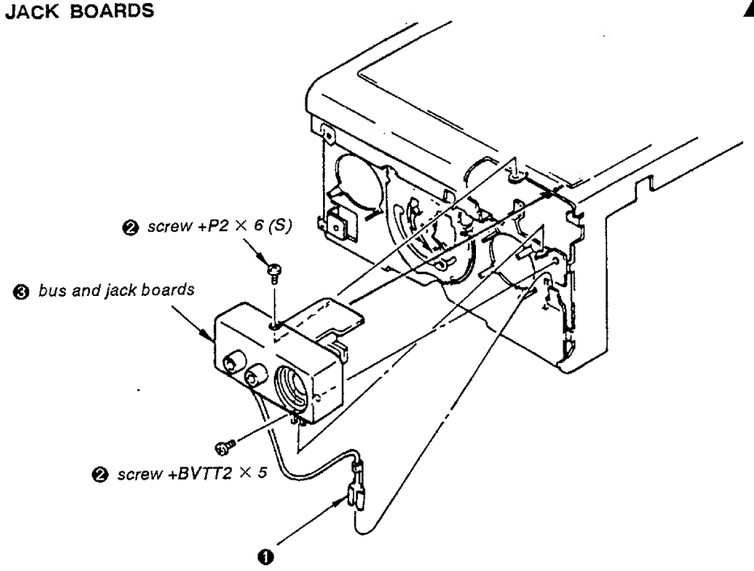
CASE (UPPER) AND FRONT PANEL ASS'Y



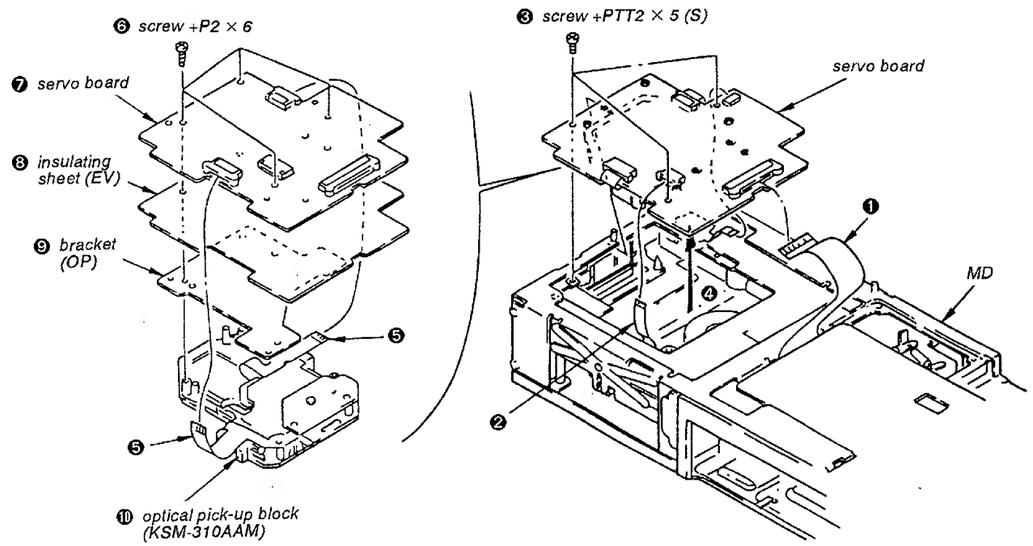
CASE (LOWER)


❷ arm (spring) ass'y
❶ tension spring (FL)
❶ Remove the tention spring (FL) from the arm (spring) ass'y.
❶ arm (spring) ass'y
❷ tension spring (FL)
❸ danper (CNG)
Apply alcohol on assembling
case (lower)
Apply alcohol on assembling
❸ danper (CNG)
4

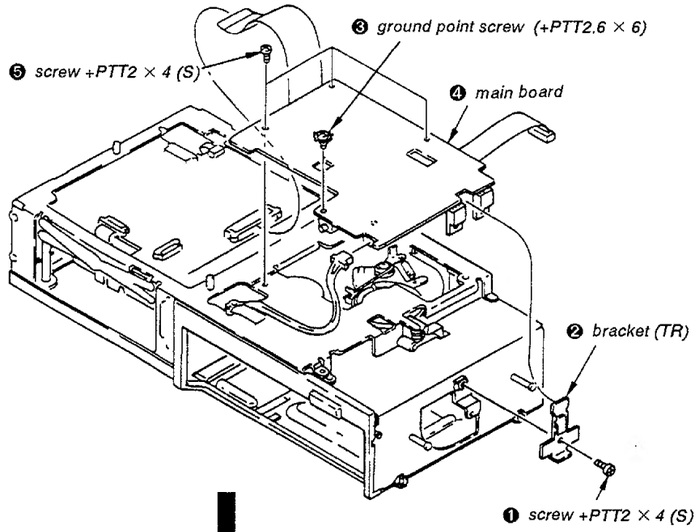
BUS AND JACK BOARDS



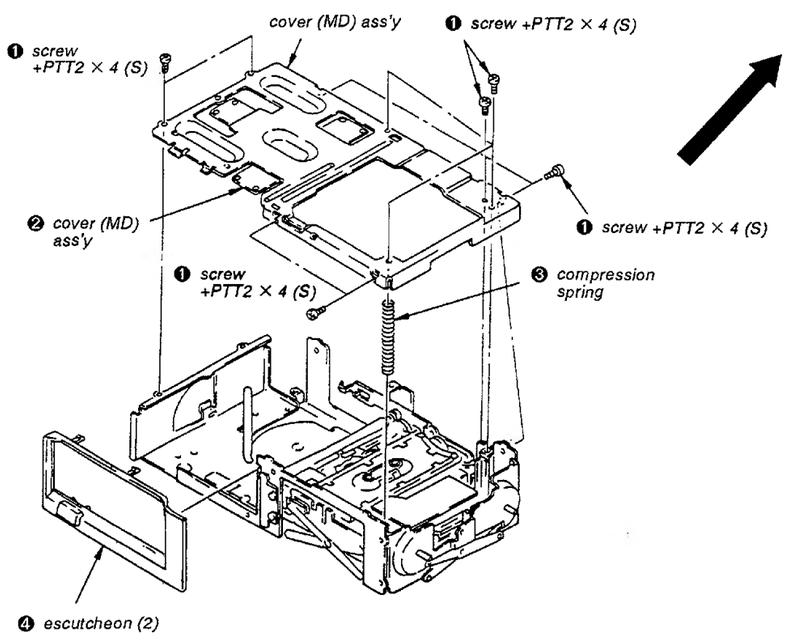
SERVO BOARD AND OPTICAL PICK-UP BLOCK (KSM-310AAM)



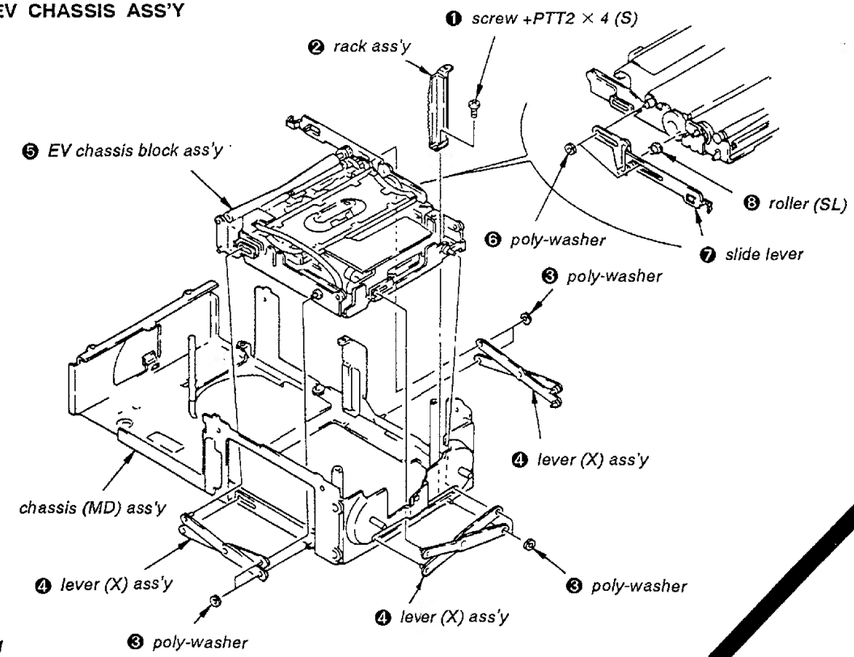
MAIN BOARD



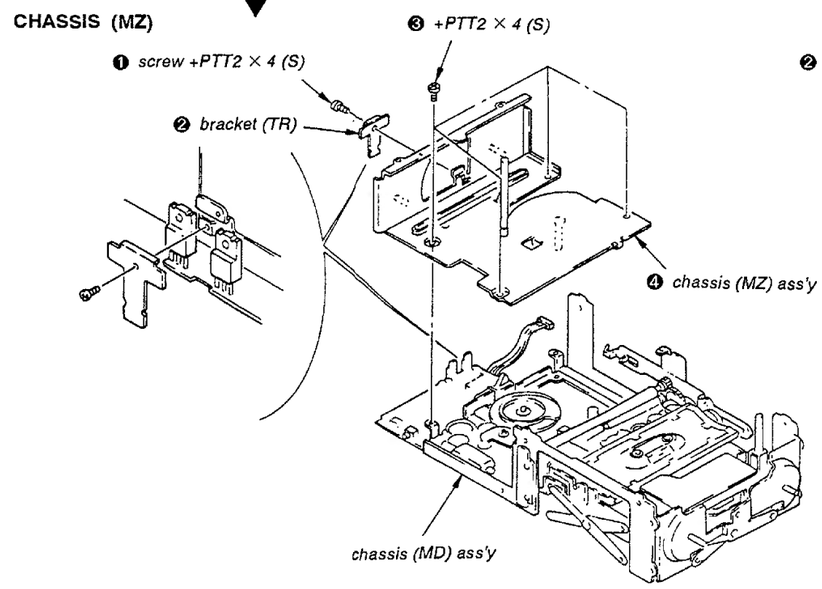
COVER (MD) ASS'Y AND ESCUTCHEON


❶ screw +PTT2 × 4 (S)
cover (MD) ass'y
❶ screw +PTT2 × 4 (S)
❷ cover (MD) ass'y
❶ screw +PTT2 × 4 (S)
❶ screw +PTT2 × 4 (S)
❸ compression spring
❹ escutcheon (2)

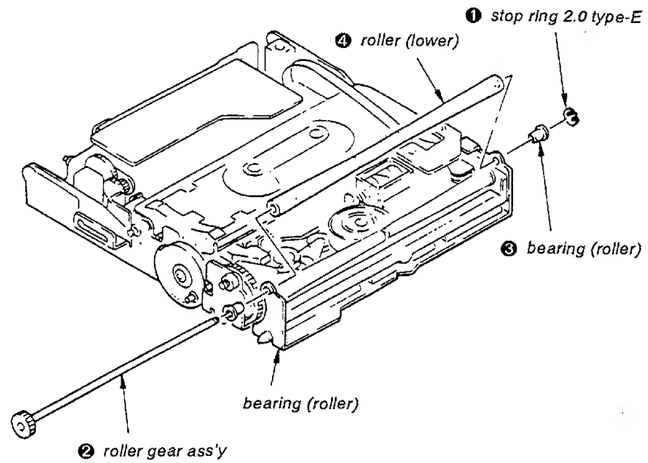
EV CHASSIS ASS'Y



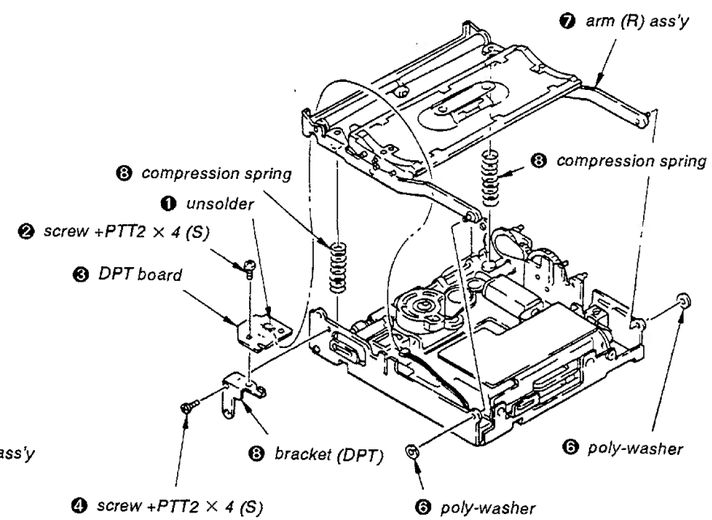
CHASSIS (MZ)



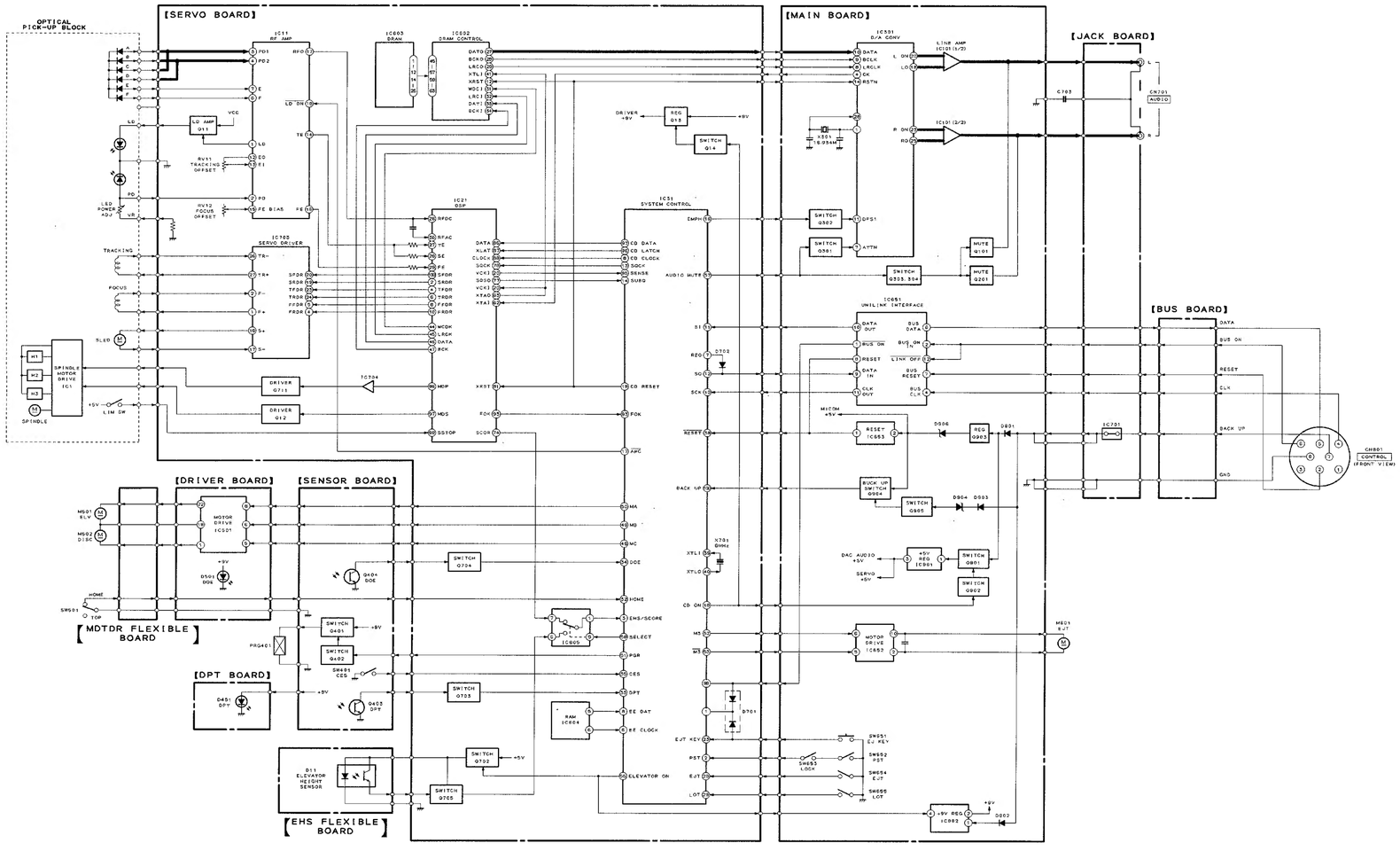
ROLLER (LOWER)



DPT BOARD AND ARM (R) ASS'Y



3-3. BLOCK DIAGRAM


OPTICAL PICK-UP BLOCK
【SERVO BOARD】
【MAIN BOARD】
【JACK BOARD】
【BUS BOARD】
【DRIVER BOARD】
【SENSOR BOARD】
【MDTDR FLEXIBLE BOARD】
【DPT BOARD】
【EHS FLEXIBLE BOARD】
IC11 RF AMP
IC602 DRAM CONTROL
IC603 DRAM
IC21 DSP
IC703 SERVO DRIVER
IC31 SYSTEM CONTROL
IC301 D/A CONV
IC651 UNILINK INTERFACE
LINE AMP IC101(1/2)
IC101(2/2)
SPINDLE MOTOR DRIVE IC1
MOTOR DRIVE IC501
MOTOR DRIVE IC652
RAM IC604
+5V REG IC802
CN201 AUDIO
CN801 CONTROL
(FRONT VIEW)
SPINDLE
TRACKING
FOCUS
SLED
LD AMP Q11
RV11 TRACKING OFFSET
RV12 FOCUS OFFSET
LED POWER ADJ
DRIVER Q711
DRIVER Q12
REG Q13
SWITCH Q14
SWITCH Q704
SWITCH Q703
SWITCH Q702
SWITCH Q705
SWITCH Q401
SWITCH Q402
SW401 CES
Q404 DOE
Q403 DPT
D451 DPT
D11 ELEVATOR HEIGHT SENSOR
PRG401
SW501 TOP
SW651 EJ KEY
SW652 PST
SW653 LOCK
SW654 EJT
SW655 LOT
SWITCH Q303
SWITCH Q304
SWITCH Q305
SWITCH Q306
SWITCH Q307
SWITCH Q308
SWITCH Q309
SWITCH Q901
SWITCH Q902
SWITCH Q903
SWITCH Q904
SWITCH Q905
SWITCH Q906
SWITCH Q907
SWITCH Q908
SWITCH Q909
SWITCH Q910
SWITCH Q911
SWITCH Q912
SWITCH Q913
SWITCH Q914
SWITCH Q915
SWITCH Q916
SWITCH Q917
SWITCH Q918
SWITCH Q919
SWITCH Q920
SWITCH

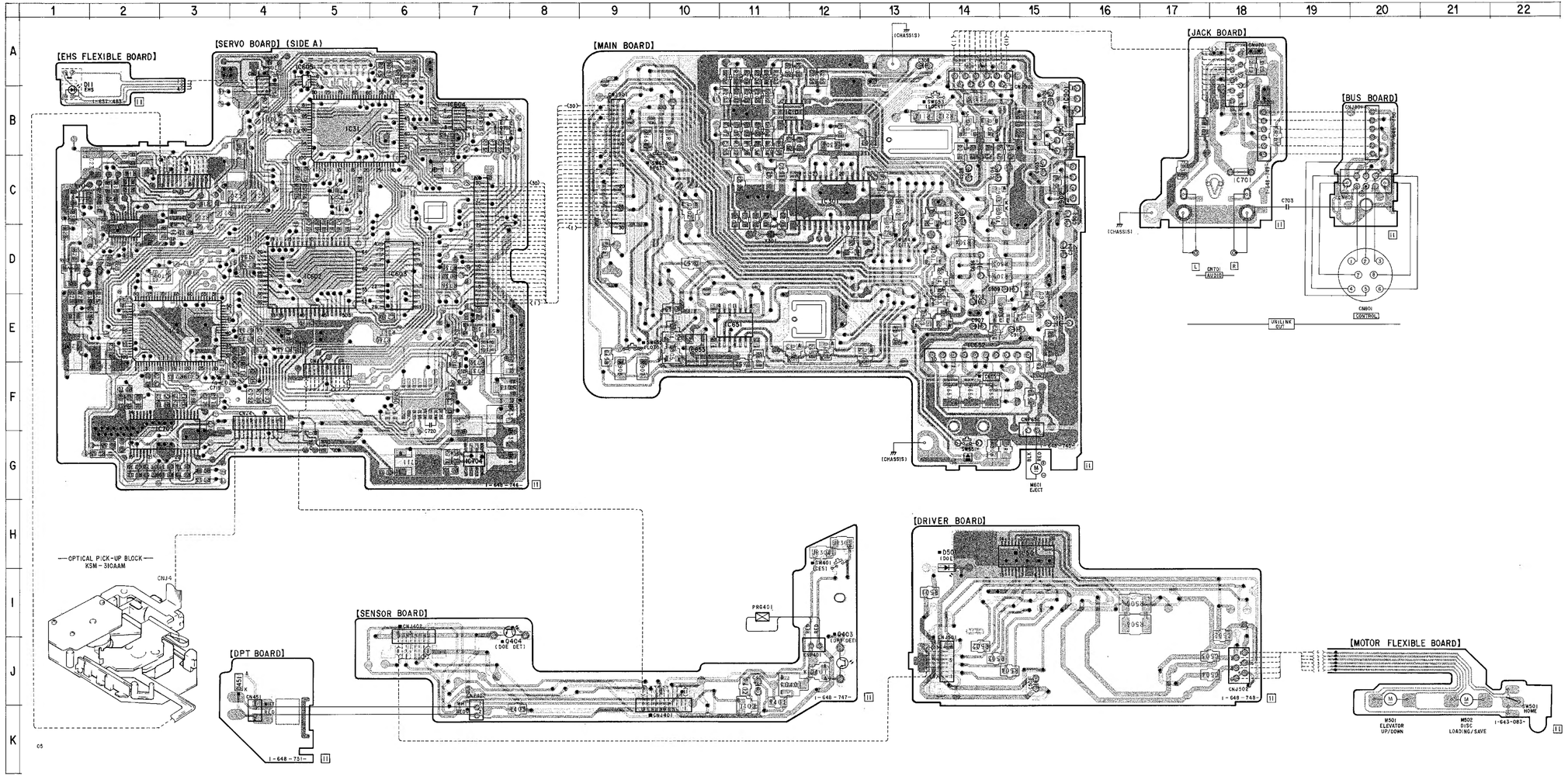
3-4. PRINTED WIRING BOARDS

• See page 14 for Semiconductor Lead Layouts.

• Semiconductor Location

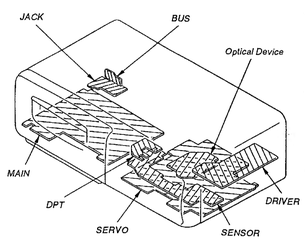
Ref. No.	Location
D11	A-1
D301	C-14
D401	J-12
D451	J-4
D501	H-14
D652	E-12
D653	E-13
D654	E-12
D701	B-4
D702	C-5
D901	B-15
D902	B-15
D903	C-14
D904	C-14
D905	E-15
D907	E-15
D908	E-14
D909	E-13
IC11	D-2
IC21	E-3
IC31	B-5
IC101	B-12
IC301	C-12
IC501	H-15
IC602	D-5
IC603	D-6
IC604	B-7
IC605	A-5
IC651	E-11
IC652	E-14
IC653	E-10
IC701	C-18
IC703	G-3
IC704	G-7
IC901	B-15
IC902	C-15
Q11	C-3
Q12	G-5
Q13	F-7
Q14	E-7
Q101	B-14
Q201	B-14
Q301	D-14
Q302	D-12
Q303	E-14
Q304	D-14
Q401	J-12
Q402	J-11
Q403	J-12
Q404	J-7
Q702	B-7
Q703	F-7
Q704	E-7
Q705	A-4
Q711	G-6
Q901	B-15
Q902	C-10
Q903	E-15
Q904	E-10
Q905	E-10

Note:
- ■ : parts mounted on the pattern of the rear side.
- ● : Through hole.
- ▨ : Pattern of the rear side.
- ▨ : Pattern from the side which enables seeing.



3-5. SCHEMATIC DIAGRAM • See page 25 to 26 for IC Block Diagrams.

• Circuit Boards Location



Note:
- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- ▭ : panel designation.
- ▭▭▭▭▭ : B + Line.
- ▭ : adjustment for repair.
- Power voltage is fed with the CD changer controller.
- Voltages and waveforms are dc with respect to ground under CD playback conditions.
  - * : Cannot be measured.
  - ( ) : Respect to A. ground.
- Voltages are taken with a VOM (10 MΩ/V). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  - ⇒ : CD

SECTION 4
EXPLODED VIEWS

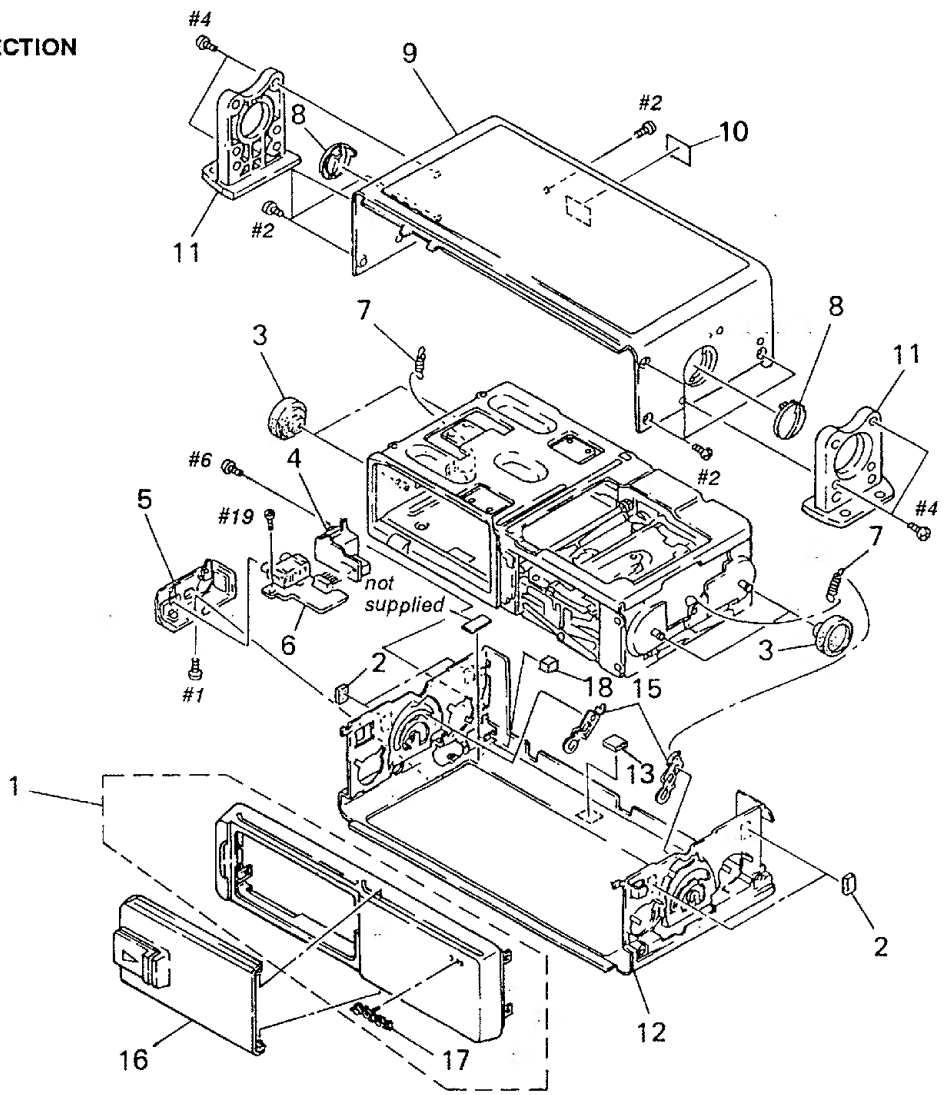
NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

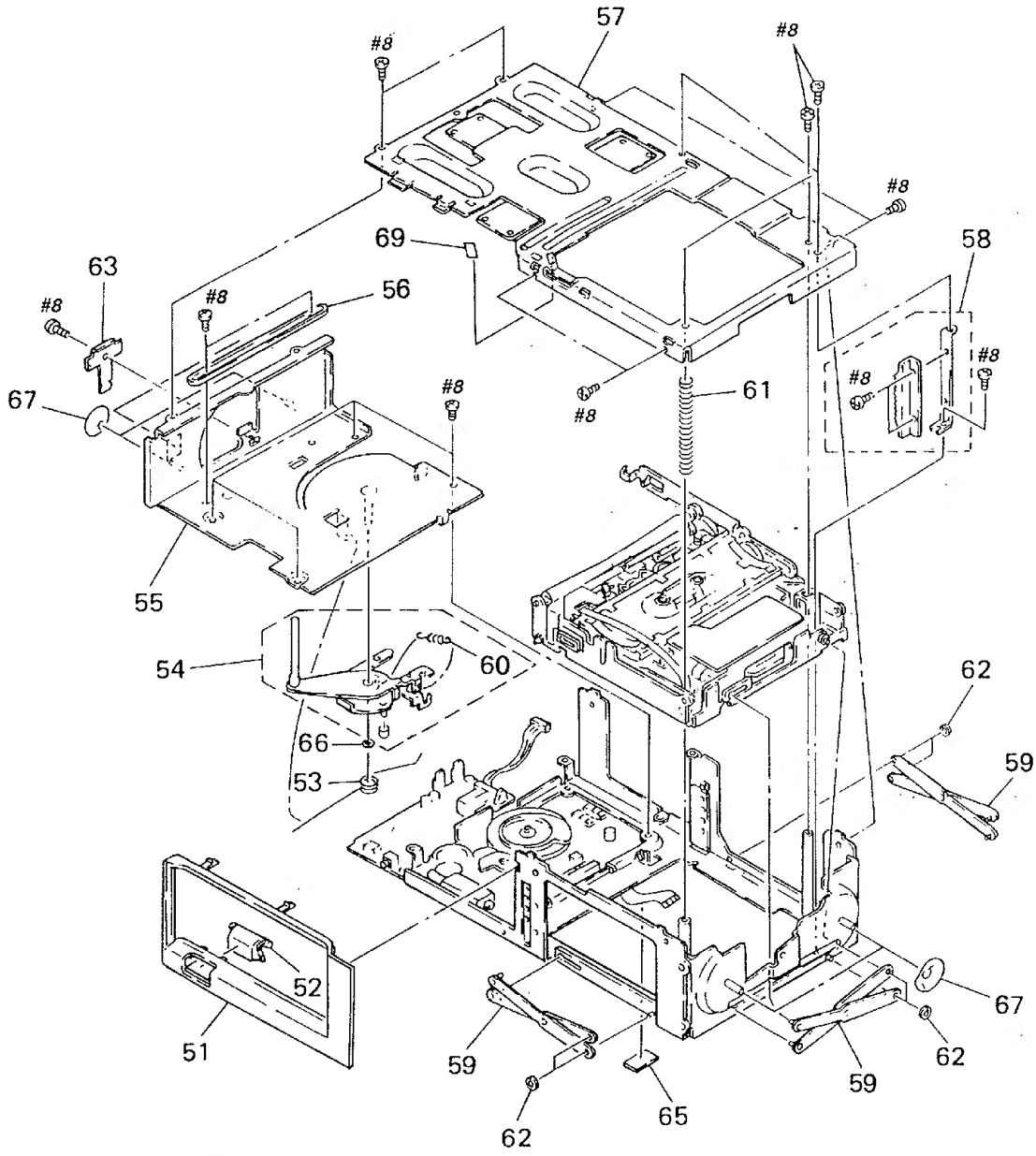
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le neméro spécifié.

(1) CASE SECTION



Ref. No.	Part No.	Description	Remark
1	X-3366-575-1	PANEL ASSY, FRONT	
2	3-385-834-01	SPACER (CASE)	
3	3-375-501-01	DAMPER (CNG)	
* 4	1-648-750-11	BUS BOARD	
5	3-375-518-21	COVER (PIN)	
* 6	1-648-749-11	JACK BOARD	
7	3-368-778-01	SPRING (FL), TENSION	
8	3-375-504-21	LEVER (SPRING)	
* 9	3-375-502-61	CASE (UPPER)	
* 10	4-885-838-00	LABEL, CLASS 1 (AEP)	
* 11	3-375-508-11	BRACKET (300)	
* 12	3-375-503-61	CASE (LOWER)	
13	9-911-841-XX	CUSHION (US, G)	
15	X-3364-882-1	ARM (SPRING) ASSY	
16	X-3366-671-1	DOOR ASSY	
17	4-942-568-01	EMBLEM (NO. 5), SONY	
18	9-911-843-XX	CUSHION	

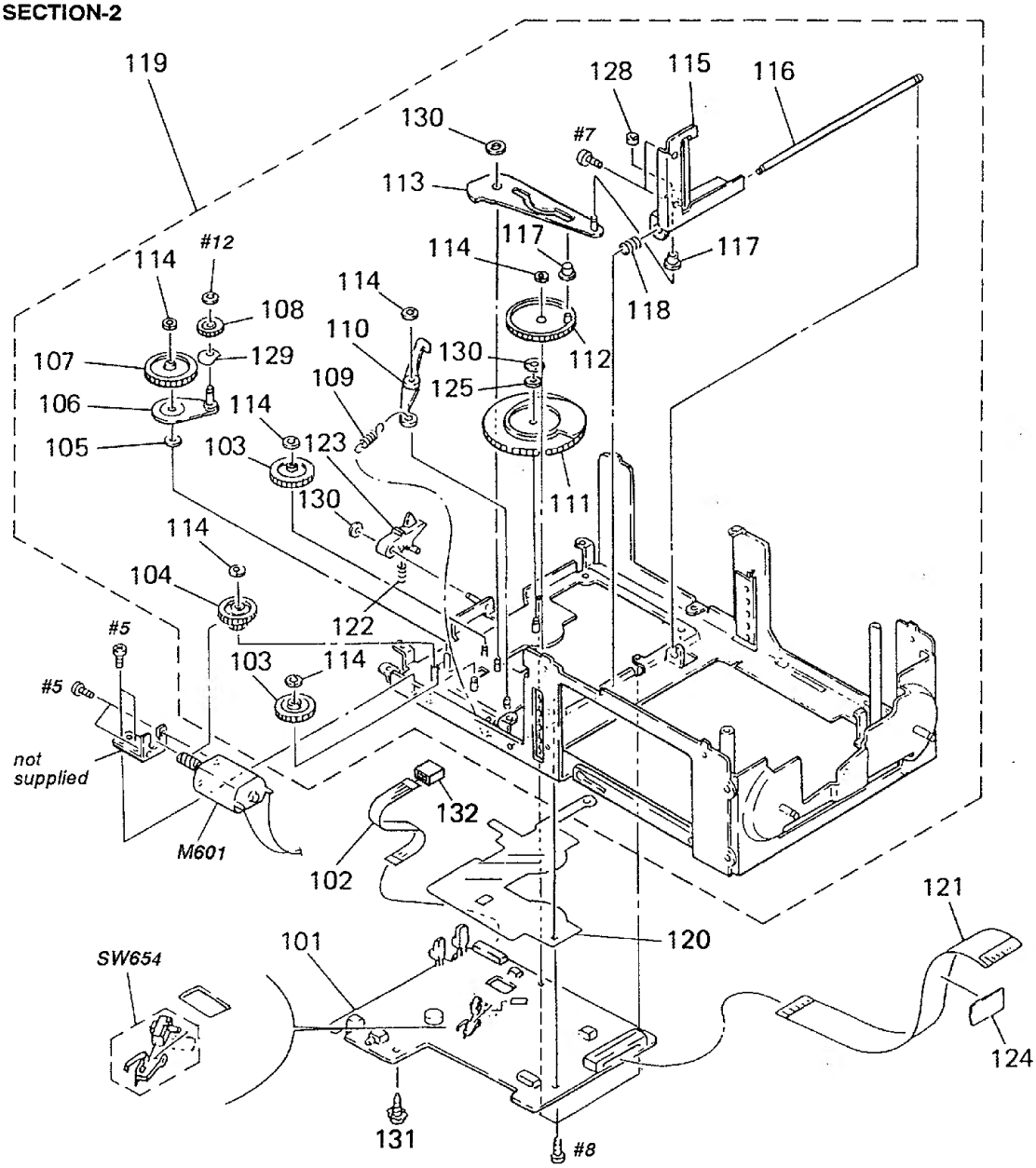
(2) MD SECTION-1



Ref. No.	Part No.	Description	Remark
* 51	3-388-593-01	ESCUTCHEON (2)	
52	3-388-592-01	BUTTON (EJ2)	
53	3-364-478-01	SPRING (EJ)	
54	X-3362-332-1	LEVER (EJ) ASSY	
* 55	X-3362-334-1	CHASSIS (MZ) ASSY	
* 56	3-364-434-01	GUIDE (MZ)	
* 57	X-3362-347-1	COVER (MD) ASSY	
58	X-3362-488-1	RACK ASSY	

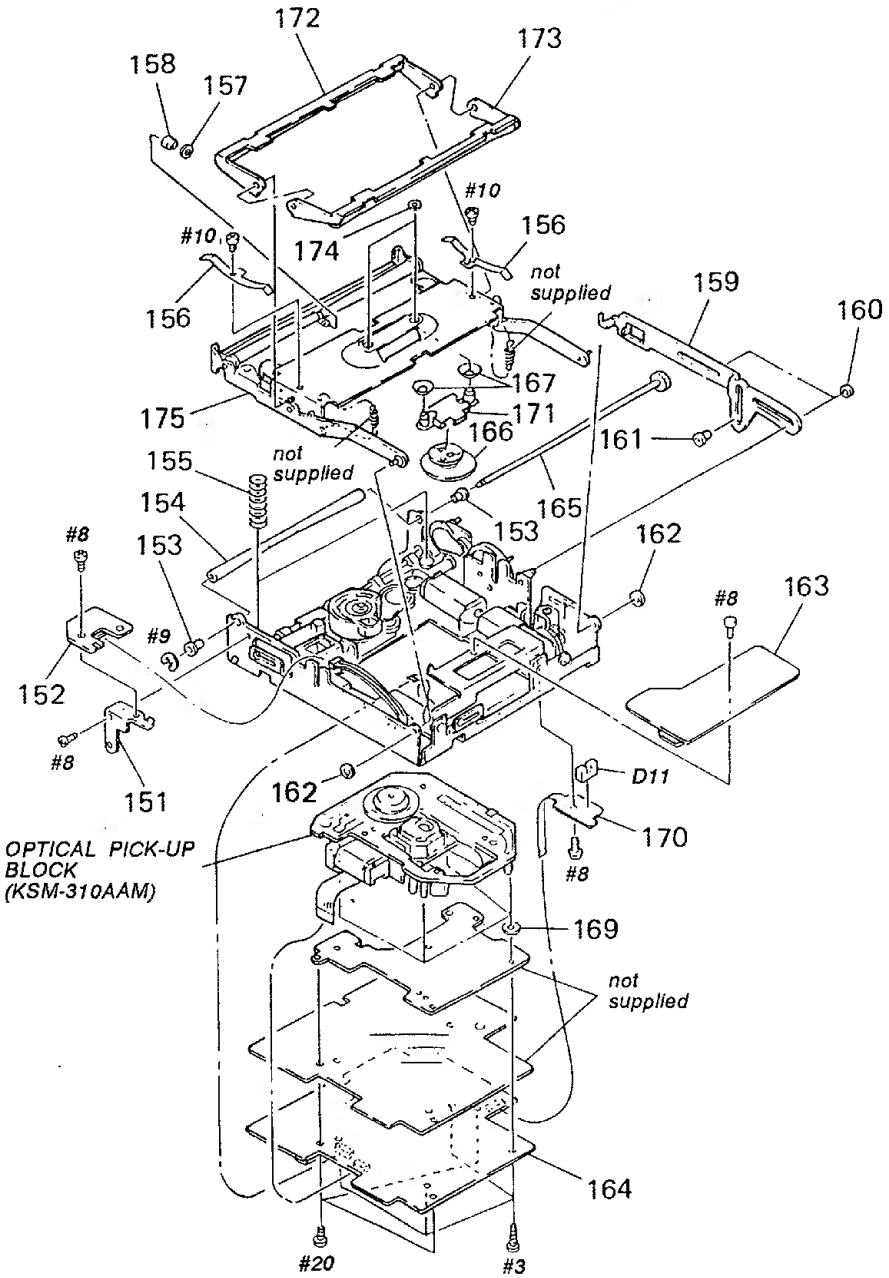
Ref. No.	Part No.	Description	Remark
* 59	X-3362-348-1	LEVER (X) ASSY	
60	3-568-814-00	SPRING, TENSION	
61	3-370-364-01	SPRING, COMPRESSION	
62	3-377-719-01	WASHER, POLYETHYLENE	
* 63	3-364-410-03	BRACKET (TR)	
65	9-911-844-XX	CUSHION, BATTERY	
66	3-377-720-01	WASHER, POLYETHYLENE	
67	3-385-808-01	SHEET, PROTECTION, DAMPER	

(3) MD SECTION-2



Ref. No.	Part No.	Description	Remark
* 101	A-3295-595-A	MAIN BOARD, COMPLETE	
102	1-642-838-11	PC BOARD, JACK FLEXIBLE	
103	3-364-420-01	GEAR (M)	
104	3-364-413-01	WHEEL (B), WORM	
105	3-701-437-01	WASHER	
106	X-3364-526-2	LEVER (KMZ) ASSY	
107	3-364-417-01	GEAR (L)	
108	3-364-415-01	GEAR (KS)	
109	3-531-866-01	SPRING, TENSION	
110	3-364-433-01	STOPPER (DR)	
111	3-364-411-01	GEAR (EJ), CAM	
112	3-364-432-01	GEAR (DR)	
* 113	X-3364-527-1	LEVER (DR) ASSY	
114	3-377-719-11	WASHER, POLYETHYLENE	
* 115	X-3364-525-1	SLIDER (DR) ASSY	
* 116	3-364-502-01	SHAFT (SDR)	
117	3-364-506-01	ROLLER (SL)	
118	3-568-315-01	SPRING, COMPRESSION	
* 119	X-3364-556-8	CHASSIS SUB ASSY, MD	
* 120	3-368-567-01	SHEET (MD), INSULATING	
121	1-751-190-11	CABLE, FLEXIBLE FLAT (30 CORE)	
122	3-370-385-01	SPRING, COMPRESSION	
* 123	3-364-431-01	LEVER (MZ LOCK)	
124	9-911-844-XX	CUSHION, BATTERY	
125	3-373-013-01	SPRING (EJ CAM)	
128	3-379-490-11	WASHER, POLYETHYLENE	
129	3-364-387-11	SPRING (F)	
130	3-377-720-21	WASHER, POLYETHYLENE	
131	3-376-464-11	SCREW(+PTT 2.6X6), GROUND POINT	
132	1-543-936-11	CORE (FPC) (US, G)	
M601	X-3362-325-1	MOTOR ASSY (EJECT/LEVER OUT)	
SW654	1-571-754-51	SWITCH, PUSH (1 KEY) (EJT)	

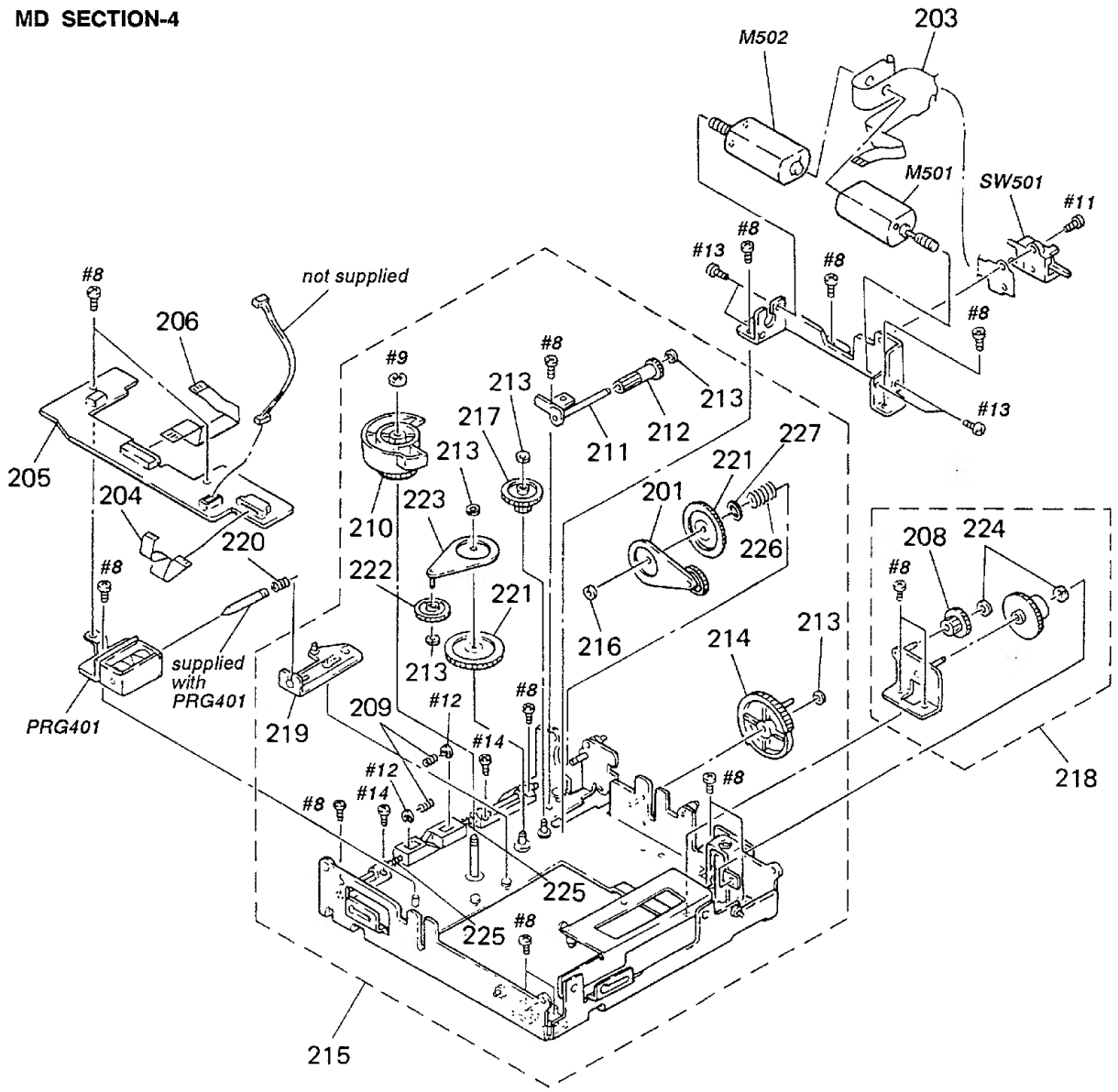
(4) MD SECTION-3



Ref. No.	Part No.	Description	Remark
* 151	3-368-565-01	BRACKET (DPT)	
* 152	1-648-751-11	DPT BOARD	
153	3-364-421-01	BEARING (ROLLER)	
154	3-323-231-11	ROLLER (LOWER)	
155	3-364-508-01	SPRING, COMPRESSION	
156	3-375-290-01	SPRING (DH)	
157	3-341-752-11	WASHER, POLYETHYLENE	
158	3-364-504-01	ROLLER (RA)	
* 159	3-364-380-01	LEVER, SLIDE	
160	3-377-720-11	WASHER, POLYETHYLENE	
161	3-364-506-01	ROLLER (SL)	
162	3-377-719-01	WASHER, POLYETHYLENE	
* 163	1-648-748-11	DRIVER BOARD	

Ref. No.	Part No.	Description	Remark
* 164	A-3295-590-A	SERVO BOARD, COMPLETE	
165	X-3362-345-1	GEAR ASSY, ROLLER	
166	3-380-759-02	PLATE (C), CHUCK	
167	3-364-387-01	SPRING (F)	
* 169	3-360-121-31	SPACER (W)	
170	1-637-483-11	EHS FLEXIBLE BOARD	
171	X-3364-480-2	BRACKET (CP) ASSY	
172	X-3364-482-2	ARM (DH) ASSY	
173	X-3366-968-1	ARM (DH2) ASSY (2)	
174	3-342-940-01	WASHER (M)	
175	X-3366-564-1	ARM (R2) ASSY	
D11	8-749-924-17	DIODE PHOTO INTERRUPTER SG-220	

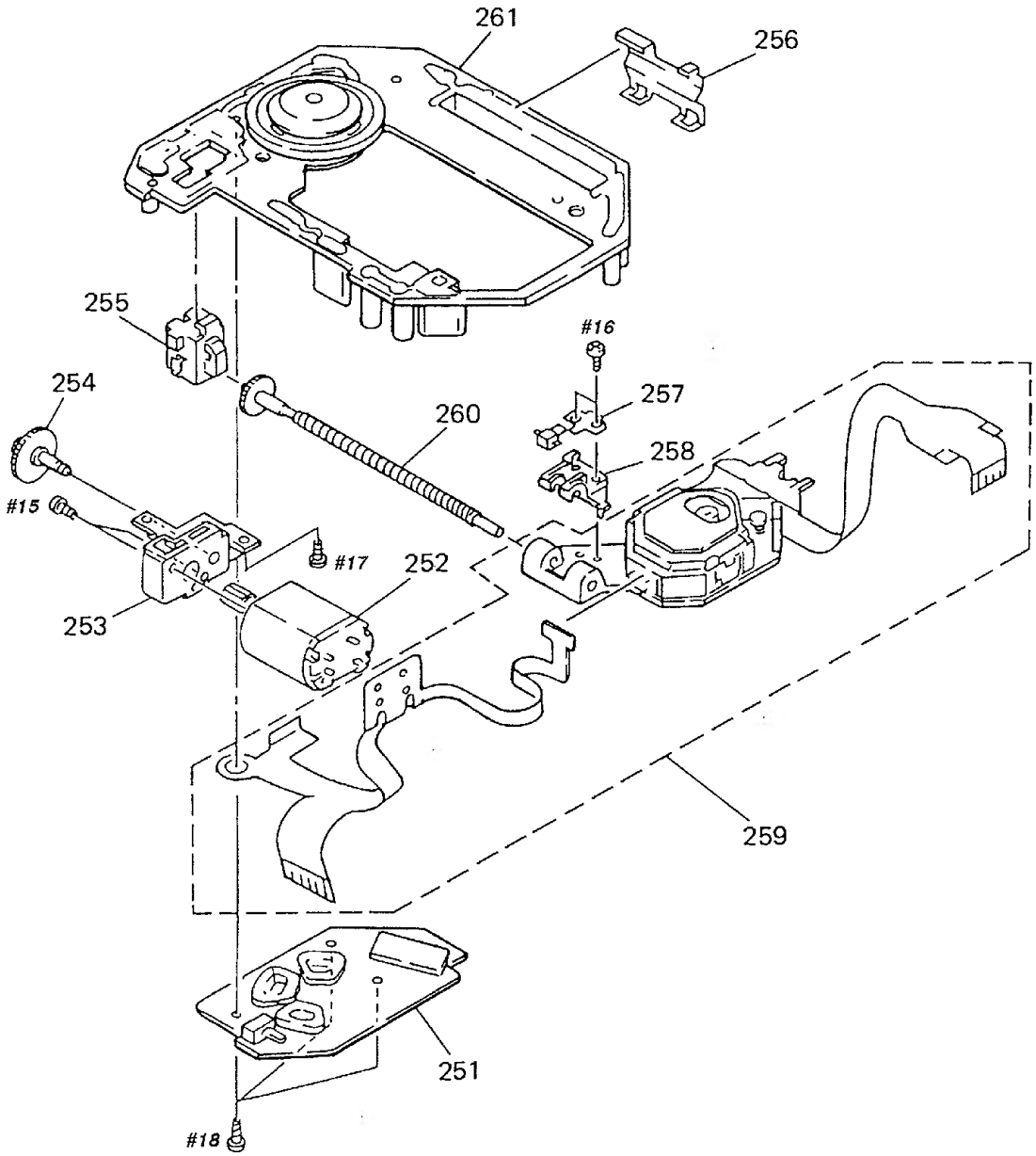
(5) MD SECTION-4



Ref. No.	Part No.	Description	Remark
201	X-3364-535-3	GEAR (KW) ASSY	
203	1-643-083-11	PC BOARD, MOTOR FLEXIBLE	
204	1-648-661-11	CABLE, FLEXIBLE FLAT (8 CORE)	
* 205	1-648-747-11	SENSOR BOARD	
206	1-648-660-11	CABLE, FLEXIBLE FLAT (11 CORE)	
208	X-3365-420-5	WHEEL (E) ASSY, WORM	
209	3-485-239-00	SPRING, COMPRESSION	
210	3-364-419-01	GEAR (R), CAM	
211	X-3364-530-1	BRACKET (WWR) ASSY	
212	3-364-416-01	WHEEL (R), WORM	
213	3-377-719-01	WASHER, POLYETHYLENE	
214	3-364-418-01	GEAR (SL)	
* 215	X-3364-555-6	CHASSIS SUB ASSY, EV	
216	3-377-719-11	WASHER, POLYETHYLENE	
217	3-364-505-01	WHEEL (C), WORM	

Ref. No.	Part No.	Description	Remark
218	X-3366-870-1	GEAR ASSY, EV	
219	X-3364-531-1	SLIDER (KR) ASSY	
220	3-353-804-01	SPRING, COMPRESSION	
221	3-364-417-01	GEAR (L)	
222	3-364-422-01	GEAR (K)	
223	X-3364-529-1	LEVER (KRA) ASSY	
224	3-321-813-01	WASHER, COTTER POLYETHYLENE	
225	3-308-717-00	SPRING, COMPRESSION	
226	3-388-479-01	SPRING, COMPRESSION	
227	3-701-441-11	WASHER	
M501	X-3362-325-1	MOTOR ASSY (ELV UP/DOWN)	
M502	X-3362-325-1	MOTOR ASSY (OISC LOAD/SAVE)	
PRG401	1-454-580-11	SOLENOID, PLUNGER	
SW501	1-571-300-31	SWITCH ROTARY (HOME/TOP)	

(6) OPTICAL PICK-UP BLOCK (KSM-310AAM)



Ref. No.	Part No.	Description	Remark
251	8-835-456-01	MOTOR, DC SSC-02E01S (SPINDLE)	
252	X-2625-210-1	GEAR ASSY, SLED MOTOR	
* 253	2-625-513-01	BASE, DRIVING	
254	2-625-507-01	GEAR (B2)	
* 255	A-4910-348-B	RETAINER ASSY, THRUST	
* 256	2-625-514-01	COVER, FLEXIBLE	

Ref. No.	Part No.	Description	Remark
257	2-625-516-01	SPRING, (A), FEED	
258	2-625-515-01	RACK (AT)	
⚠259	8-848-178-11	OPTICAL PICK-UP KSS-310A	
260	X-2625-209-1	SCREW ASSY, SLED	
261	X-2625-270-2	OMD CHASSIS ASSY	

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le neméro spécifié.

CDX-U404

SONY
SERVICE MANUAL

US Model
Canadian Model
AEP Model
E Model

SUPPLEMENT-1

File this supplement with the service manual.

Subject: Mechanical Adjustment
Electrical Adjustments

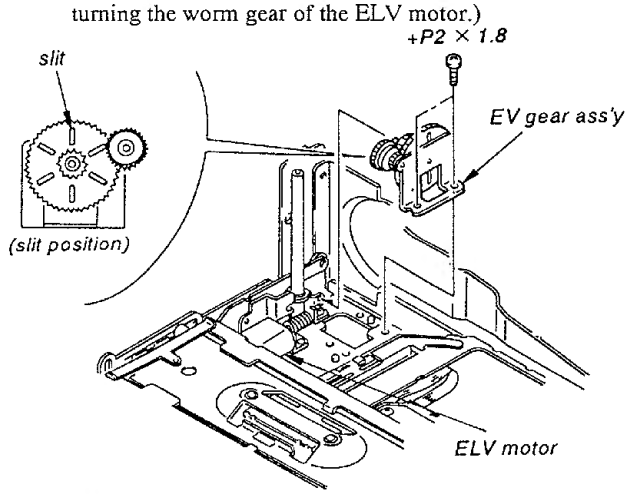
1. MECHANICAL ADJUSTMENT

1-1. ELEVATOR HEIGHT ADJUSTMENT

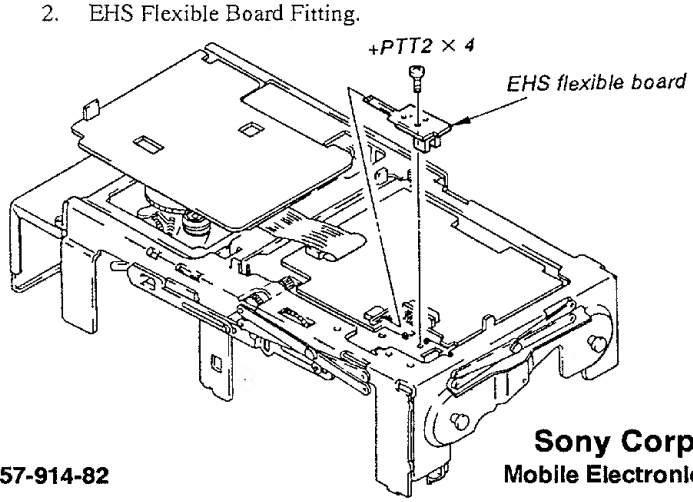
This adjustment should be done when replacing the rack assembly on the parts related to it.

Procedure :

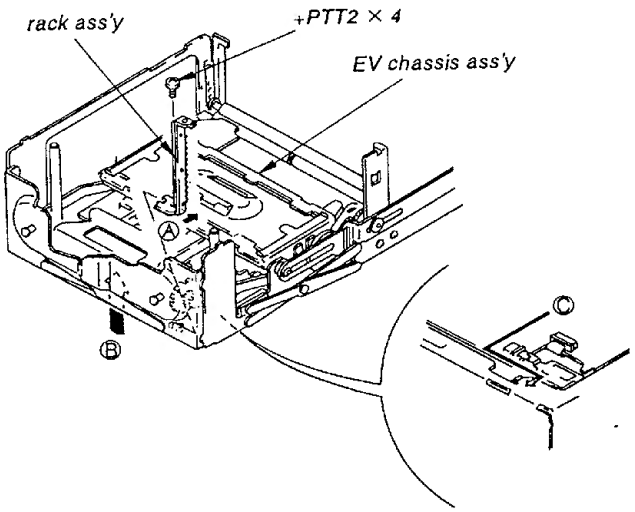
1. Fit the EV gear assembly after adjusting its slit position as shown in the figure. (When the slit position is out of order after fitting, it can be adjusted finely by turning the worm gear of the ELV motor.)



2. EHS Flexible Board Fitting.



3. Fit the rack assembly putting it in the arrow Ⓐ direction. At this time insert a spacer (approx. 1 mm thickness) or fit the rack assembly while pushing the EV chassis assembly in the arrow Ⓑ direction.



Note : When this adjustment is out of orther, it doesn't operate normally and the roarding of the motor can be heard. In this case adjust again.

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Mobile Electronics Company

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Quality Engineering Dept.

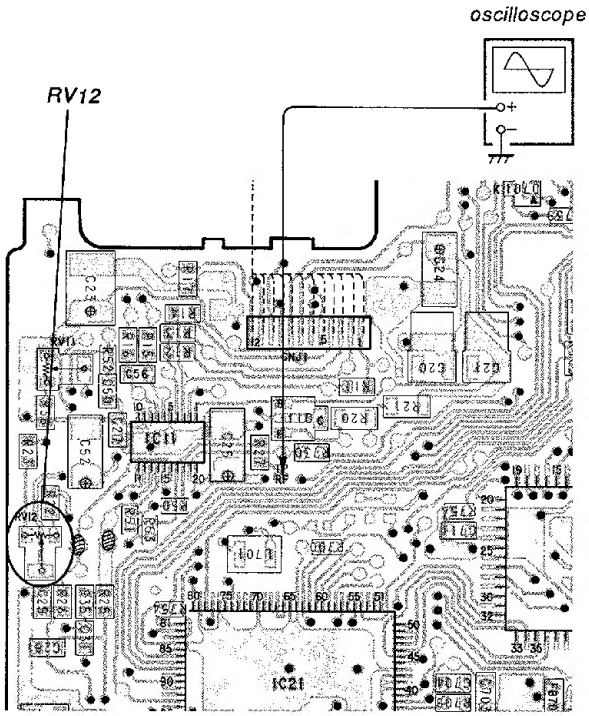
2. ELECTRICAL ADJUSTMENTS

1. Perform adjustments as given.
2. Be sure to use the disc "YEDS-18" parts code : 3-702-101-01, but only when indicated.
3. Power supply voltage : DC 14.4 V (more than 3A).

2-1. FOCUS OFFSET ADJUSTMENT

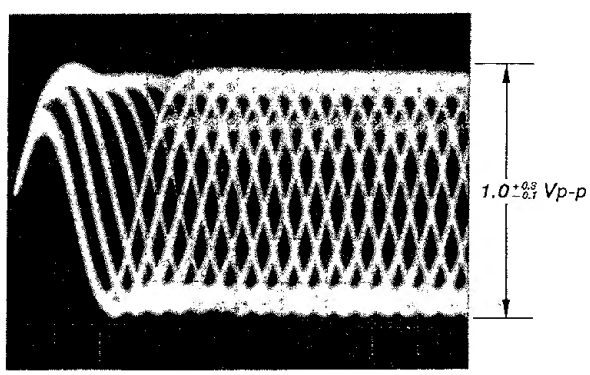
Procedure :

[SERVO BOARD] – Conductor Side –



1. Connect the oscilloscope to SERVO board test point RF.
2. Put the set into play mode by loading the disc.
3. Adjust (SERVO board) RV12 so that the oscilloscope. Waveform eye pattern is good.
   (A good eye pattern means that the diamond shape (◇) in the center of the oscilloscope can be clearly distinguished.)

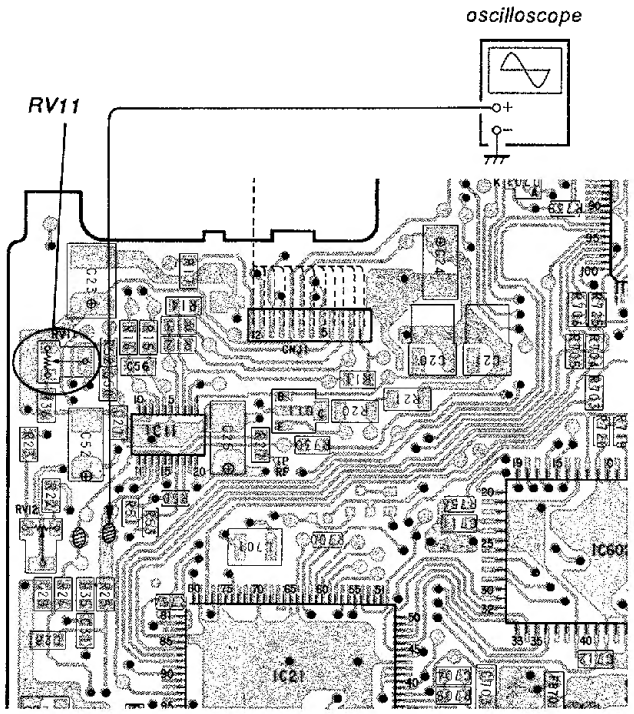
Volt/Div : 200 mV
Time/Div : 0.5 μSec



2-2. TRACKING OFFSET ADJUSTMENT

Procedure :

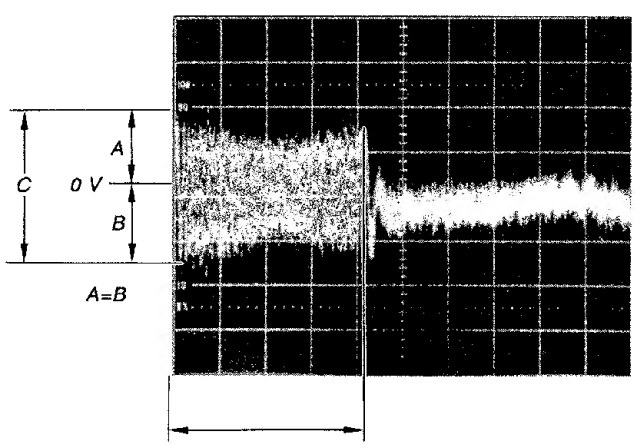
[SERVO BOARD] – Conductor Side –



1. Connect the oscilloscope to SERVO board test point TE, pin ⑭ of IC11.
2. Put the set into play mode by loading the disc.
3. Press the |◀◀ AMS ▶▶| button, then, check the traverse waveform.*
4. Adjust RV11 (SERVO board) so that the oscilloscope reading is symmetrical in relation to 0 V.

*Traverse waveform : This is the tracking error waveform appears when crossing the track.

Volt/Div : 0.5 V
Time/Div : 2 mSec
Center 0 V



travers waveform
(100 track jump waveform)